July 10, 1945. R. A. RUTH 2,380,267

PRINT TRIMMING GAUGE

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FIG. 1.

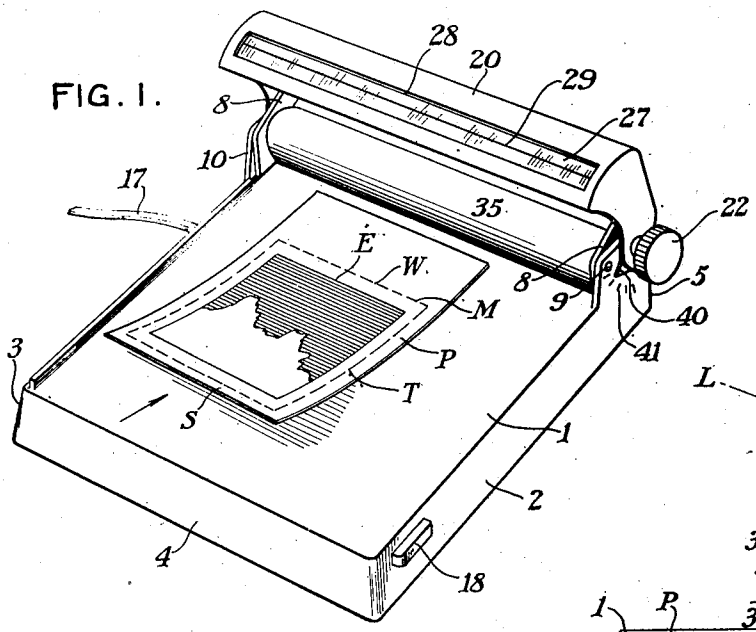


FIG. 2.

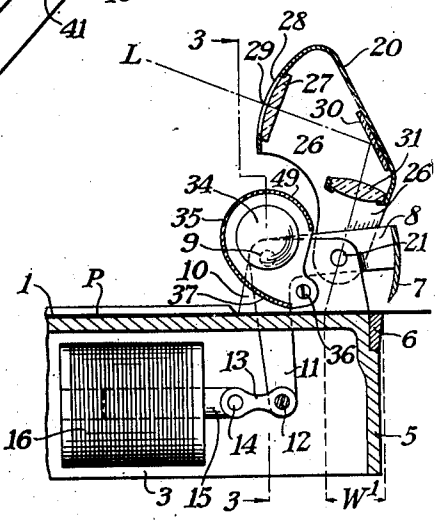


FIG. 4.

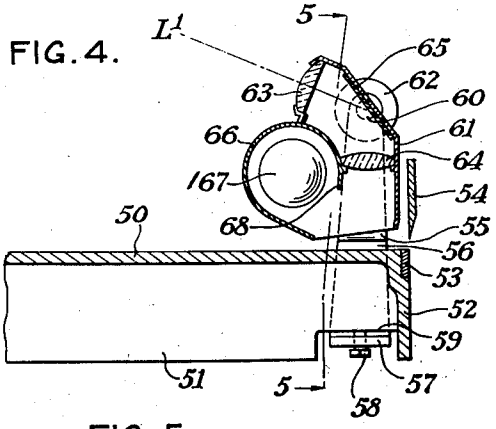


FIG. 5.

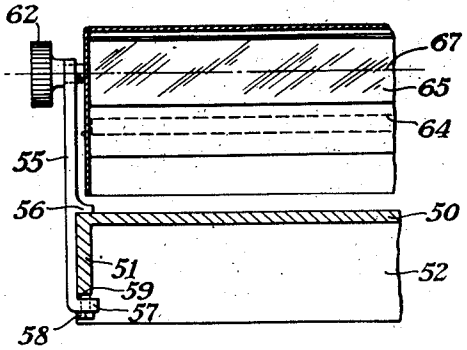
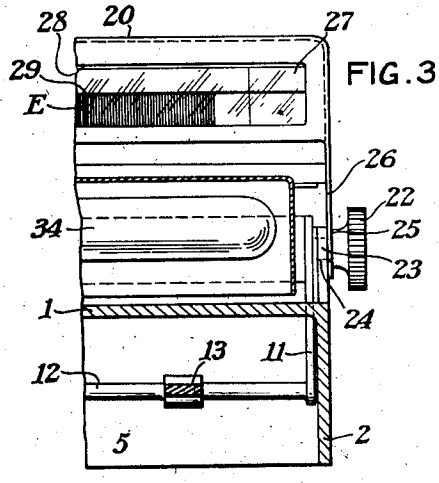


FIG. 3.



ROGER A. RUTH
INVENTOR

BY Merton M Perrin
Donald H. Edwards
ATTORNEYS

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PRINT TRIMMING GAUGE

Roger A. Ruth, Rochester, N. Y., assignor to Eastman Kodak Company, Rochester, N. Y., a corporation of New Jersey

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16 Claims. (Cl. 164—43)

This invention relates to trimming boards and particularly to trimmers designed for cutting the edges of a photographic print. One object of my invention is to provide a print trimmer with an optical gauge by which a margin can be accurately formed around the edges of a print. Another object of my invention is to provide an attachment for print trimmers which will facilitate guiding a print into a position to be trimmed. A further object of my invention is to provide a print trimmer with an optical gauge positioned at a convenient angle so that the trimmer can be readily operated and to provide an electrically-controlled knife operating mechanism which operates at a predetermined distance from the edge of a print so that a fixed width margin can readily be produced. Other objects will appear from the following specification, the novel features being particularly pointed out in the claims at the end thereof.

Coming now to the drawing wherein like reference characters denote like parts throughout:

Fig. 1 is a perspective view of a print trimmer equipped with a gauge constructed in accordance with and embodying a preferred form of my invention;

Fig. 2 is a fragmentary sectional view through the optical gauge and a portion of the print trimmer;

Fig. 3 is a fragmentary sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is a fragmentary sectional view similar to Fig. 2 but showing a second embodiment of my invention; and

Fig. 5 is a fragmentary sectional view taken on line 5—5 of Fig. 4.

Most photographic prints are provided with a margin extending around the four sides of the print, the width of the margin on all four sides sometimes being the same and sometimes certain margins, such as perhaps the margin at the bottom of the print, are purposely made wider than the margins on the remaining sides. It has been customary on print trimmers to provide a gauge in the form of a metal or plastic strip extending across the trimmer near the knife, and by standing directly over the trimmer an operator can produce the required margin by aligning the edge of the print with such a guide. These guides, however, have the disadvantage of being rather difficult to set and, in addition, they have the disadvantage of requiring an operator to look directly down upon the margin gauge in order to register the print, thus causing unnecessary fatigue. One of the objects of my present invention is to provide a printer which can readily be operated by an operator sitting down and to provide a margin gauge which can be readily and quickly adjusted for different width margins.

In Fig. 1 I have shown a preferred form of my invention in which the margin gauge is built into a print trimmer. In this form the trimmer may comprise a flat base member 1, having downwardly extending sides 2 and 3 and including downwardly extending end walls 4 and 5. End wall 5 preferably carries a fixed cutting knife 6, there being a movable cutting knife 7 carried by one arm 8 of a bell crank lever pivoted at 9 to an upwardly extending flange 10 carried by the base 1. The other arm 11 of the bell crank lever is pivotally attached at 12 to a link 13 which is also pivotally attached at 14 to the core 15 of a solenoid 16. There is an electric cord 17 by which the print trimmer may be attached to a convenient source of current, and I provide a switch handle 18 which may close a suitable circuit to operate the knife 7 through the solenoid 16. The knife construction as thus far described may be of any known construction but is merely described as one type of trimmer which is adaptable for use with my improved form of print gauge.

The optical print gauge may consist of a housing 20 which is pivotally supported at 21 upon the upstanding flange 10 and on one side I prefer to provide a knob 22 which serves not only as a pivot but, in addition, as a locking member for holding the housing 20 at the selected inclination about its pivot. This locking may be accomplished by a screw 23 entering a threaded aperture 24 in the flange 10 so that a flange 25 will bind an end wall 26 of the housing tightly in a set position.

The housing may include a viewing lens 27 which lies beneath a long, narrow window 28 in the housing 20, this lens and window extending parallel to the fixed knife 6. The lens 27 is a viewing lens and it is provided with a line 29 which is used for registering the edge E of a print P to be trimmed.

Referring to Fig. 1 the print P to be trimmed is usually made on a sheet S of paper considerably larger than the final trimmed print. I have illustrated in broken lines a margin M to be left on the print so that the remaining paper is to be cut away during the trimming operation. The width W of the margin to be provided is determined by the setting of the housing 20 since the width W^1 of a center line of sight through the optical registering means determines the

width of the resulting margin when a print is registered with the edge E coinciding with the line 29.

Behind the viewing lens 27 there is a mirror 30 carried by the housing 20 and beneath the mirror there is an objective lens 31 for focusing an image of the edge E of a print on the viewing lens 28. The lenses 28 and 31 can conveniently be made cylindrical in shape, and I have found that certain plastics are sufficiently clear and produce a sufficiently good image for my purpose. It is obvious, however, that glass may be used if desired.

In order to form a print guide and, in addition, to illuminate the edge of the print so that a clear, sharp image may appear in the viewing lens 28, I provide a lamp 34 which also preferably extends across or substantially across the end of the printing board near the wall 5. The lamp 34 is enclosed in a lamp housing 35 which is fixedly attached by suitable means such as screws 36 (only one being shown) to the base of the print trimmer, the screw 36 shown passing into the upstanding flange 10. The wall 37 of the lamp reflector 35 is curved in such a manner and it extends close to the top 1 of the printer so that a print P can readily be guided into a viewing and trimming position. In addition, by limiting the distance that the flange 37 is spaced from the top wall of the printer the thickness of sheets to be trimmed can be limited, thus preventing heavier material than the trimmer can cut from being introduced between the knives 6 and 7.

The operation of the device described is extremely simple. If a ½" margin is to be used the knob 22 may be turned until a pointer 40 comes opposite the proper graduation on the scale 41. A print P is then slid beneath the guiding wall 37 until an operator looking along the line of sight L can view in the viewing lens 28 the edge E of the print as shown in Fig. 2. This edge E is brought into registration with the line 29 and when this is done the print is in the proper position for the desired margin. The switch handle 18 is then depressed and the solenoid 16 causes the movable knife 7 to sever the edge of the paper by cutting against the fixed knife edge 6. This operation is repeated for all four sides of the print and can be accomplished very rapidly. If an operator should desire one wide margin, as at the bottom of the print, he merely turns the knob 22 and the pointer 40 to the desired graduation 41 before trimming that edge.

I have also provided an optical trimming gauge which may be applied to standard types of printing boards, one embodiment of such a device being shown in Figs. 4 and 5. Here, the standard type of print trimmer is diagrammatically shown as comprising a trimming board 50 with downwardly extending flanges 51 and 52, the latter carrying a fixed knife 53 with which a movable knife 54 cooperates.

My attachment comprises an upwardly extending bracket 55 having a fixed flange 56 to engage the printing board 50 at the top and a lower flange 57 including a setscrew 58 to engage a lower wall 59 of the printer. There are two of these brackets, one on each side of the print trimmer, and arms extend upwardly to carry trunnions 60 which support a movable housing 61 which may, as in the first embodiment of my invention, be locked in a set position relative to the brackets 55 by means of a knob 62.

In this embodiment of my invention the housing 61 encloses both the optical system which may comprise lenses 63 and 64 with a mirror 65 between the lenses and a lamp house 66.

As in the first embodiment of my invention the lenses 63 and 64 may be spherical or cylindrical lenses, lens 63 being a viewing lens and including a registering line 67. Lens 64 is the objective which focuses the edge E of a print upon the viewing lens 63.

The lamp housing 66 encloses a lamp 167 and in this embodiment when the housing 61 is moved about its pivot the lamp and optical system move together.

The lamp house includes a flange 68 which prevents any direct rays of light from reaching the optical system. In the first embodiment of my invention the lamp house 35 was provided with a flange 49 which accomplished the same purpose.

In the second embodiment of my invention the operation is the same as that of the first embodiment in that the operator sets the housing by means of a knob 62 so that the line of sight L^1 will produce a margin of the desired width W. In this form of the invention the knife 54 must be operated by hand rather than by electric power as in the first embodiment.

The attachment differs from the first-described embodiment of my invention primarily in that the housing 61 carries both the optical system and lamp since it is easier to make an attachment in this manner. I prefer, however, the embodiment shown in the first three figures wherein the lamp house 35 is fixedly mounted, because in this form the wall 37 forms a paper guide which will permit only paper of the proper thickness to be trimmed and which will exclude heavier material which the trimmer is not designed to cut.

Both embodiments of my invention include a means for viewing the edge of a print from a convenient angle and a means for quickly and accurately altering the optical system to gauge a print for different width margins. While I have described and illustrated two preferred forms of my invention it is obvious that various changes can be made in the construction without departing from the scope of the appended claims.

What I claim is:

1. An attachment for print trimmers including a base, stationary and movable knives carried at one end of the base and means for operating the movable knife, said attachment comprising a housing, means for attaching the housing to the trimmer adjacent the knives thereon, a window in said housing extending parallel to said knives and extending along the greater part of the length of said knives, and optical means carried by the housing for focusing a portion of a print to be cut upon said window, said housing including means for determining the alignment of the print relative to said knives.

2. An attachment for print trimmers including a base, stationary and movable knives carried at one end of the base and means for operating the movable knife, said attachment comprising a housing, means for attaching the housing to the trimmer adjacent the knives thereon, a window in said housing extending parallel to said knives and extending along the greater part of the length of said knives, optical means carried by the housing for focusing a portion of a print to be cut upon said window, said housing including means for determining the alignment of the print relative to said knives, and means for illuminating

that area of the print trimmer base adjacent the knives to illuminate a print laid thereon.

3. An attachment for print trimmers including a base, stationary and movable knives carried at one end of the base and means for operating the movable knife, said attachment comprising a housing, means for attaching the housing to the trimmer adjacent the knives thereon, a window in said housing extending parallel to said knives and extending along the greater part of the length of said knives, optical means carried by the housing for focusing a portion of a print to be cut upon said window, said housing including means for determining the alignment of the print relative to said knives, means for illuminating that area of the print trimmer base adjacent the knives to illuminate a print laid thereon and a light shield for preventing direct light rays from passing through the optical system.

4. An attachment for print trimmers including a base, stationary and movable knives carried at one end of the base and means for operating the movable knife, said attachment comprising a housing, means for attaching the housing to the trimmer adjacent the knives thereon, a window in said housing extending parallel to said knives and extending along the greater part of the length of said knives, optical means carried by the housing for focusing a portion of a print to be cut upon said window, said housing including means for determining the alignment of the print relative to said knives, and means for moving the housing with its optical means to and from the stationary knife whereby the margin of a print to be trimmed may be varied.

5. A sheet aligning attachment for print trimmers including a base and cooperating knives carried by the base at one end for trimming a print forming a trimming edge, and comprising a housing having an elongated window therein, a cylindrical lens extending across the window, optical means including a mirror and lens for directing and focusing an image of a portion of a print to be trimmed upon the cylindrical lens at the window, and means extending parallel to the trimming edge of the base viewable in the window for aligning said print to be trimmed with the cooperating knives.

6. A sheet aligning attachment for print trimmers including a base and cooperating knives carried by the base at one end for trimming a print forming a trimming edge, and comprising a housing having an elongated window therein, a cylindrical lens extending across the window, optical means including a mirror and lens for directing and focusing an image of a portion of a print to be trimmed upon the cylindrical lens at the window, means extending parallel to the trimming edge of the base viewable in the window for aligning said print to be trimmed with the cooperating knives, and means for varying the position of the means extending parallel to the trimming edge of the base to and from said trimming edge whereby the margin of a print to be trimmed may be varied.

7. A print trimmer comprising a generally rectangular base, a fixed knife extending across an end thereof, a movable knife carried by the base positioned to cooperate with the fixed knife to cut sheet material, a print locating device including a housing including a long narrow window and extending across the base adjacent said fixed knife and an optical print locating system enclosed in said housing, said optical locating system including a viewing lens extending substantially across the housing at the window thereof and having a print locating line inscribed thereon.

8. A print trimmer comprising a generally rectangular base, a fixed knife extending across an end thereof, a movable knife carried by the base positioned to cooperate with the fixed knife to cut sheet material, a print locating device including a housing including a long narrow window and extending across the base adjacent said fixed knife and an optical print locating system enclosed in said housing, said optical locating system including a viewing lens extending substantially across the housing at the window thereof and having a print locating line inscribed thereon, said lens being cylindrical in form.

9. A print trimmer comprising a generally rectangular base, a fixed knife extending across an end thereof, a movable knife carried by the base positioned to cooperate with the fixed knife to cut sheet material, a print locating device including a housing including a long narrow window and extending across the base adjacent said fixed knife and an optical print locating system enclosed in said housing, said optical locating system including a cylindrical viewing lens, a mirror and a second cylindrical lens for focusing a portion of a print to be trimmed on the cylindrical viewing lens.

10. A print trimmer comprising a generally rectangular base, a fixed knife extending across an end thereof, a movable knife carried by the base positioned to cooperate with the fixed knife to cut sheet material, a print locating device including a housing including a long narrow window and extending across the base adjacent said fixed knife and an optical print locating system enclosed in said housing, said optical locating system including a viewing lens extending substantially across the housing at the window thereof and having a print locating line inscribed thereon, said lens being cylindrical in form and said cylindrical viewing lens including a registering line parallel with said fixed knife.

11. A print trimmer comprising a generally rectangular base, a fixed knife extending across an end thereof, a movable knife carried by the base positioned to cooperate with the fixed knife to cut sheet material, a print locating device including a housing including a long narrow window and extending across the base adjacent said fixed knife, a hinged mount on which said housing may move to and from the fixed knife, a cylindrical viewing lens mounted in the long narrow window, a mirror and a second cylindrical lens carried by the housing and focusing an image from a print to be trimmed lying on the base to the cylindrical viewing lens, and means carried by the viewing lens and extending parallel to the fixed cutting knife for registering a portion of the print image in parallel relationship to the fixed cutting knife, and a lamp shielded to prevent direct light rays from striking the lenses and mirror for illuminating at least that portion of the print viewed in the viewing lens.

12. A print trimmer comprising a generally rectangular base, a fixed knife extending across an end thereof, a movable knife carried by the base positioned to cooperate with the fixed knife to cut sheet material, a print locating device including a housing including a long narrow window and extending across the base adjacent said fixed knife, a hinged mount on which said housing may move to and from the fixed knife, a cylindrical viewing lens mounted in the long narrow window, a mirror and a second cylindrical

lens carried by the housing and focusing an image from a print to be trimmed lying on the base to the cylindrical viewing lens, and means carried by the viewing lens and extending parallel to the fixed cutting knife for registering a portion of the print image in parallel relationship to the fixed cutting knife, and a lamp shielded to prevent direct light rays from striking the lenses and mirror for illuminating at least that portion of the print viewed in the viewing lens, said lamp shield including a portion lying close to the rectangular base positioned to direct a print into a viewing position.

13. A print trimmer, comprising a generally rectangular base, knife means at one end of the base for trimming a print lying on the base, and means for illuminating that part of a print to be trimmed comprising an electric lamp, and a lamp housing at least partially encircling the lamp and extending across the base near the knife means, the lamp housing directing light towards the knife means and preventing direct light from passing upwardly from the lamp.

14. A print trimmer, comprising a generally rectangular base, knife means at one end of the base for trimming a print lying on the base, and means for illuminating that part of a print to be trimmed comprising an electric lamp, and a lamp housing at least partially encircling the lamp and extending across the base near the knife means, and including a curved wall extending towards and terminating above the generally rectangular base forming a print guideway for directing a print towards the knife means for trimming.

15. A print trimmer, comprising a generally rectangular base, knife means at one end of the base for trimming a print lying on the base, and means for illuminating that part of a print to be trimmed comprising an electric lamp, and a lamp housing at least partially encircling the lamp and extending across the base near the knife means and including a curved wall extending towards and terminating above the generally rectangular base forming a print guideway for directing a print towards the knife means for trimming, an optical print aligning device, a movable housing enclosing and carrying the device, said housing extending parallel to and partially above the lamp housing and arranged to project an image of an illuminated part of the print to be trimmed into a readily viewable position.

16. A sheet aligning attachment for print trimmers comprising an optical device including two lenses and a mirror carried by a housing, said housing being adapted to be attached to a print trimmer including a knife means for trimming prints and in a generally parallel relationship thereto, means for moving the housing while maintaining a generally parallel relationship to the knife means, the optical device providing a readily viewable image of a portion of a print to be trimmed lying on the trimmer adjacent the knife means for trimming the print.

ROGER A. RUTH.